

### **REMARKS**

The Final Office Action mailed February 10, 2009 has been carefully considered. Reconsideration in view of the following remarks is respectfully requested.

#### **Amendment to Claim 1, 9 and 13**

Claims 1, 9, and 13 have been amended for improved clarity and grammatical accuracy. The amendment does not raise any issues beyond those already considered by the Examiner.

No amendment made is related to the statutory requirements of patentability unless expressly stated herein. No amendment is made for the purpose of narrowing the scope of any claim, unless Applicant argues herein that such amendment is made to distinguish over a particular identified reference or combination of references. Any remarks made herein with respect to a given claim or amendment is intended only in the context of that specific claim or amendment, and should not be applied to other claims, amendments or aspects of Applicant's invention.

#### **Rejection(s) Under 35 U.S.C. §103(a)**

Claims 1-6, 9, and 12-14 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Simcock (EP 0 403 138) in view of Cartlidge et al. (U.S. pat. no. 5,272,719). Each of claims 1-6, and 9 depends, directly or indirectly, upon claim 1, and claims 13-14 are method claims that also reference the limitations of device claim 1.

The Examiner states that Simlock "does not specifically disclose that the current of the first and second components of the variable current are both generated by the (same) power source." (Action at 4.) Applicants agree that Simlock contains no such disclosure. The '138 application contains no indication or teaching that the power supply device 36 controls both the melting circuit 16 and the agitation circuit 18. Rather, the application states that circuits 16 and 18 are "separately powered and regulated" (col. 2, ll. 54-58.) The agitation circuit 18 is powered by a three phase source 20 and controlled by voltage control 24 (col. 3, ll. 1-6). The '138 specification states that the "[m]edium frequency melting power input [from 36] cannot affect the transformer device 26 as the secondary terminals of the latter are effectively in parallel at medium frequency" (col. 3, l. 58-col. 4, l. 3).

However, the Examiner also states that Cartlidge remedies the deficiency in Simlock by disclosing:

a plural output power supply for use in induction holding and melting furnaces, in which the plural output power supply comprises at least one rectifier section having an output and a plurality of high frequency inverter sections, such that the output supplies AC power to the induction coil, and further including switch means operable to interrupt power from selected sections fo inverter sections to obtain variable current, such that the use of current of both the first and second components of the variable current being generate by the same power source being advantageous for simultaneously melting metal and holding molten metal for treatment, thus increasing equipment utilization (efficiency) as opposed to using two power supplies.

(Action at 4.)

However, Cartlidge is not analogous or related to Simlock or the present claim 1. Cartlidge discloses a device for commuting or reversing power networks. These power networks feed several inductors which are used in turn for heating molten metal baths and then alternately keeping the temperature constant, with a low power. The single power supply of Cartlidge is operated in two different modes merely to heat a molten system, and does not combine two different frequency components to simultaneously agitate and heat a two-phase molten system.

One of skill in the art would not be motivated to combine the teachings of Simlock with the teachings of Cartlidge. For one thing, the problems being solved by Cartlidge in using a single source with two alternating switched “modes” is are not the same problems that are solved by claim 1 and the present disclosure. Cartlidge uses a two-mode power supply to save costs , and to prevent wasting capacity of the power supplies. The use of alternating switched power “modes” as described by Cartlidge, standing alone, does not simultaneously agitate and heat a two phase molten system.

The way in which the two electrical heating “modes” are switched in Cartlidge is very different from the way that the present invention teaches to superimpose two frequency components on a single circuit, both components operating simultaneously to perform different functions. There is no teaching in Cartlidge as to how to combine two frequency components, or how to ensure that one component has the function of agitation while the other component has the function of heating. These differences mean that it would not be obvious to one of ordinary skill in the art to combine Simlock and Cartlidge. Even if the skilled artisan did combine the two teachings, there is no teaching in either Simlock or Cartlidge as to how to make the presently-claimed invention operable for its intended purpose of simultaneous agitation and heating with a single power supply.

Claims 2-6, 9, and 12-14 variously depend, directly or indirectly, from the base claims addressed above, or reference their limitations. Cartlidge fails to remedy the above-mentioned shortcomings of Simlock with respect to the base claim 1. Accordingly, claims 2-6, 9, and 12, which by definition include all the limitations of the base claims, and claims 13-14, which reference all the limitations of claim 1, are patentable over the combination of these references.

**Request for Entry of Amendment**

Entry of this Amendment will place the Application in better condition for allowance, or at the least, narrow any issues for an appeal. Accordingly, entry of this Amendment is appropriate and is respectfully requested.

**Conclusion**

In view of the preceding discussion, Applicants respectfully urge that the claims of the present application define patentable subject matter and should be passed to allowance.

If the Examiner believes that a telephone call would help advance prosecution of the present invention, the Examiner is kindly invited to call the undersigned attorney at the number below.

Please charge any additional required fees, including those necessary to obtain extensions of time to render timely the filing of the instant Amendment and/or Reply to Office Action, or credit any overpayment not otherwise credited, to our deposit account no. 50-3557.

Respectfully submitted,  
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